

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A guard mechanism ~~(200)~~ attachable to a syringe ~~(100)~~ to make it into a disposable automatic safety syringe, said syringe ~~(100)~~ comprising:

- a syringe body $[(1)]$ hollow on the inside and open at the front and rear,

- a plunger $[(4)]$ sliding inside the syringe body $[(1)]$ with an injection stroke extending from a retracted syringe-filling position to a forward syringe-emptying position, said plunger $[(4)]$ being provided at the rear with a shaft ~~(41)~~ that can be operated manually and brought out of the syringe body by means of the rear end ~~(42)~~ thereof, and

- an injection needle $[(2)]$ incorporated into a needle-carrier ~~(20)~~ engageable in the head ~~(115)~~ of the syringe body $[(1)]$, wherein said guard mechanism ~~(200)~~ is arranged and adapted to be pre-assembled and comprises:

- a sleeve $[(5)]$ that can be slidably mounted on said syringe body $[(1)]$,

- a spring $[(7)]$ housed in said sleeve $[(5)]$, $[[\text{and}]]$

- [[a]] an abutment member [[(8)]] for said spring [[(7)]], also housed in said sleeve [[(5)]] and able to be made integral with the front part of said syringe body [[(1)]], and

locking means formed in said sleeve and cooperating with said abutment member to lock the sleeve when the sleeve is in its forward position of safety, said locking means comprise a pair of front tongues opposed to a pair of rear tongues formed in said sleeve, said pair of front tongues having rear abutment surfaces able to abut against a shoulder of the abutment member and said pair of rear tongues having front abutment surfaces to abut against a rear edge of the body of the abutment member.

2. (currently amended) [[A]] The mechanism ~~(200)~~ according to claim 1, ~~characterised in that~~ wherein in said pre-assembled condition, said abutment member [[(8)]] for said spring [[(7)]] is retained by ~~locking means (66) in the form of flexible~~ said pair of rear tongues protruding inward from said sleeve, [[5)]] said pair of rear tongues being flexible.

3. (currently amended) [[A]] The mechanism ~~(200)~~ according to claim 1, ~~characterised in that~~ in wherein during operation said sleeve [[(5)]] is slidably mounted on said syringe body [[(1)]], to pass from a retracted position of use of the syringe, to a forward position of safety, wherein it covers said needle [[(2)]], and said spring [[(7)]] is disposed under compression in

the front part of said sleeve ~~[[5]]~~, between said sleeve ~~[[5]]~~ and said abutment member ~~[[8]]~~ made integral with said syringe body ~~[[1]]~~, to urge the axial movement of the sleeve ~~[[5]]~~ with respect to the syringe body, the mechanism further comprising:

- other locking means ~~(66, 11)~~ disposed in the rear part of the sleeve ~~[[5]]~~ and in the rear part of the syringe body ~~[[1]]~~, in reciprocal engagement, to keep the sleeve locked in the retracted position of use against the action of said spring ~~[[7]]~~, and
- operating means ~~(43)~~ disposed in said shaft ~~(41)~~ to release said locking means ~~(56)~~, when the plunger ~~[[4]]~~ reaches the end of the injection stroke, so as to allow the axial movement of the sleeve into the safety position, thanks to the action of said spring ~~[[7]]~~.

4. (currently amended) ~~[[A]]~~ The mechanism ~~(200)~~ according to claim 1, ~~characterised in that~~ wherein said abutment member ~~[[8]]~~ comprises:

- a cylindrical or frusto-conical body ~~(80)~~, hollow on the inside to be applied to the front part of the syringe body ~~[[1]]~~, ~~[[e]]~~ and
- a cylindrical or frusto-conical tang ~~(82)~~ with a smaller diameter than the body ~~(80)~~ and protruding forward therefrom so as to give rise to a shoulder ~~(84)~~.

5. (currently amended) [[A]] The mechanism according to claim 4, ~~characterised in that~~ wherein said spring is a spiral spring [[(7)]] disposed in the front part (51) of the sleeve, around the tang ~~(82)~~ of the abutment member, with one end of the spring [[(7)]] abutting against a collar ~~(52)~~ protruding inward in the front edge of the front part ~~(51)~~ of the sleeve and the other end of the spring abutting against the shoulder ~~(84)~~ of the abutment member.

6-7. (canceled)

8. (currently amended) [[A]] The mechanism according to claim [[7]] 1, ~~characterised in that~~ wherein said pairs of opposed tongues ~~(56, 66)~~ of the sleeve are flexible and are formed by means of substantially U-shaped opposed cuts ~~(57, 67)~~ in the sleeve body, to be able to bend radially inward and outward with respect to the sleeve.

9. (currently amended) [[A]] The mechanism according to claim [[1]] 3, ~~characterised in that~~ wherein said other locking means for locking the sleeve [[(5)]] in the retracted position of use comprise a collar ~~(11)~~ protruding radially outward ~~from~~ from the rear edge of the syringe body [[(1)]] able to abut against said ~~flexible~~ rear tongues ~~(66)~~ formed in the rear part of the

sleeve [(5)], said ~~flexible~~ rear tongues ~~(66)~~ being flexible and ending in respective abutment surfaces ~~(68)~~ able to abut against said collar ~~(11)~~ to retain the syringe body.

10. (currently amended) [[A]] The mechanism according to claim 9, ~~characterised in that~~ wherein said flexible rear tongues ~~(66)~~ are inclined slightly inward to cooperate with ~~said~~ a circular operating crown ~~(43)~~, when the plunger is at the end of the injection stroke.

11. (currently amended) [[A]] The mechanism according to claim 1, ~~characterised in that~~ wherein said sleeve [(5)] has outwardly protruding gripping means ~~(53)~~, to give rise to a resting surface for the user's fingers.

12. (currently amended) A disposable automatic safety syringe ~~(100)~~ comprising:

[[.]]- a syringe body [(1)] hollow on the inside and open at the front and rear,

- a plunger [(4)] sliding in the syringe body [(1)] with an injection stroke extending from a retracted syringe-filling position to a forward syringe-emptying position, said plunger [(4)] being provided at the rear with a shaft ~~(41)~~ that can be operated manually and brought out of the syringe body by means of the rear end [(42)] thereof,

- an injection needle $[(2)]$ supported by a needle-carrier ~~(20)~~ engageable to the front end ~~(13)~~ of the syringe body $[(1)]$,
- a sleeve $[(5)]$ slidably mounted over said syringe body $[(1)]$, to pass from a retracted position of use of the syringe wherein the needle protrudes forward therefrom, to a forward position of safety, wherein it covers said needle $[(2)]$,
- an abutment member $[(8)]$ able to be made integral with the front part of the syringe body $[(1)]$,
- spring means $[(7)]$ disposed under compression in the front part of said sleeve $[(5)]$, between said sleeve $[(5)]$ and said abutment member $[(7)]$ to urge the axial movement of the sleeve $[(5)]$ with respect to the syringe body,
- first locking means ~~(66, 11)~~ provided in the rear part of the sleeve $[(5)]$ and in the rear part of the syringe body $[(1)]$, in reciprocal engagement, to keep the sleeve locked in the retracted position of use against the action of said spring means $[(7)]$, [and]
- operating means ~~(43)~~ disposed in said shaft ~~(41)~~ to disengage said first locking means ~~(66)~~, when the plunger $[(4)]$ reaches the end of the injection stroke, so as to allow axial movement of the sleeve into the safety position, thanks to the action of said spring means $[(7)]$, and

second locking means cooperating with said abutment member to lock the sleeve when the sleeve is in its forward position of safety, said second locking means comprising a pair of front

tongues opposed to a pair of rear tongues formed in said sleeve,
said pair of front tongues having rear abutment surfaces able to
abut against a shoulder of the abutment member and said pair of
rear tongues having front abutment surfaces able to abut against
a rear edge of the body of the abutment member.

13. (currently amended) [[A]] The syringe ~~(100)~~ according to claim 12, ~~characterised in that~~ wherein said abutment member [[(8)]] comprises:

- a cylindrical or frusto-conical body ~~(80)~~, hollow on the inside to be applied to the front part of the syringe body [[(1)]], and
- a cylindrical or frusto-conical tang ~~(82)~~ with a smaller diameter than that of the body ~~(80)~~ and protruding forward therefrom so as to give rise to a shoulder ~~(84)~~.

14. (currently amended) [[A]] The syringe according to claim 13, ~~characterised in that~~ wherein said spring means comprise a spiral spring [[(7)]] disposed inside the front part ~~(51)~~ of the sleeve, around the tang ~~(82)~~ of the abutment member, with one end of the spring abutting against a collar ~~(52)~~ protruding inward in the front edge of the front part ~~(51)~~ of the sleeve and the other end of the spring abutting against the shoulder ~~(84)~~ of the abutment member [[(8)]].

15. (canceled)

16. (currently amended) [[A]] The syringe according to claim [[15]] 12, ~~characterised in that~~ wherein said first locking means ~~for locking the sleeve (5) in the retracted position of use~~ comprise a collar ~~(11)~~ protruding radially outward from the rear edge of the syringe body [[(1)]] and able to abut against the pair of flexible rear tongues ~~(66)~~ formed in the rear part of the sleeve [[(5)]].

17. (currently amended) [[A]] The syringe according to claim 12, ~~characterised in that~~ wherein in the rear part of said shaft ~~(41)~~ of the plunger [[(4)]] there is provided a safety tab removable by the user and able to abut against the rear edge of the sleeve [[(5)]] to prevent the plunger from reaching the end of the injection stroke.

18. (currently amended) [[A]] The syringe according to claim 13, ~~characterised in that~~ wherein said tang ~~(82)~~ of the ~~contrast element (8)~~ abutment member is shaped on the inside as a Luer cone to support the needle-carrier ~~(20)~~.

19. (new) A disposable automatic safety syringe, comprising:
a hollow syringe body open at front and rear ends;

a plunger slidable in the syringe body, a rear of said plunger including a shaft that is removable from the rear end of the syringe body;

an injection needle carrier engageable to the front end of the syringe body;

a sleeve slidably mounted over said syringe body, said sleeve being movable from a retracted position of syringe use when the needle protrudes forward of the syringe, to a forward position of safety where the sleeve covers said needle;

an abutment member at a front part of the syringe body;

a compression spring in the front part of said sleeve between said sleeve and said abutment member;

a locking member provided in the rear part of the sleeve that cooperates with a rear part of the syringe body to keep the sleeve locked in the retracted position;

an operating element connected to the shaft to disengage said locking member when the plunger reaches an end of an injection stroke; and

a pair of rearwardly extending tongues opposed to a pair of forwardly extending pairs of tongues, each of said rearwardly and forwardly extending pairs of tongues being formed in said sleeve, said rearwardly extending pair of tongues having respective abutment surfaces to abut against a shoulder of the abutment member, and said pair of forwardly extending tongues having front

abutment surfaces to abut against a rear edge of the body of the
abutment member.